Diamond Head Oil RI/FS

Approach to Conducting Human Health Risk Assessment

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Table 1 identifies the exposure pathways that will be quantitatively evaluated in the risk assessment.

1. There is no current use of the site. Although unlikely, current trespassers could access the site and contact the surface soil.
2. Future use of site will be assumed to be industrial/commercial; residents will not live at site. However, we will evaluate residential use of the site as a hypothetical worst case future scenario.
3. We will also conservatively assume that groundwater from beneath the site could be used for future potable water supply.
4. Vapor intrusion from groundwater and soil into buildings, and subsequent inhalation by workers or residents will be evaluated using the Johnson and Ettinger model.
5. COPCs for the site will be selected by comparison to EPA Region 9 Preliminary Remediation Goals (PRGs).
6. We will evaluate leaching of contaminants from soil (from all depths) to groundwater by comparison to EPA Region 9 soil-to-groundwater Soil Screening Levels (SSLs) based on a dilution and attenuation factor of 20.
7. The 95 percent upper confidence limit of the mean (95%UCL) will be calculated for the surface soil and the subsurface soil using all of the available data. The 95%UCL will be used as the exposure point concentration (EPC), unless it is greater than the mean concentration, in which case the mean concentration will be used as the EPC.
8. If a groundwater contamination plume can be identified, data from the wells from the center of the plume will be used to calculate the groundwater EPC. If there is no clear contamination distribution pattern, and no clearly elevated concentration area, data from all of the wells sampled will be used to calculate the groundwater EPC.
9. Fugitive and volatile emissions from soil will be estimated using the methodology presented in the EPAs Soil Screening Guidance.
10. Exposure to VOCs in groundwater while showering will be estimated using the Schaum method
11. Preliminary remediation goals will be calculated for those constituents identified as chemicals of concern (constituents with individual carcinogenic risks greater than 10^{-5}

when the total risk to the receptor is greater than 10^{-4} and/or the noncarcinogenic hazard greater than 0.1 when the total noncarcinogenic hazard to the receptor is greater than 1).

12. A phased RI approach is proposed with an LNAPL delineation, soil sampling, and shallow groundwater sampling performed during the first phase. Based on the Phase 1 results, additional sampling may be performed during Phase 2. The risk evaluation will be performed in two phases as follows:

End of Phase 1

- Based on the Phase 1 data, prepare RAGS Part D standard tables 1 and 2 (the selection of exposure pathways and selection of chemicals of potential concern).
- Tables will be submitted as part of the Phase 1 Technical Memorandum.
- The data collected during Phase 1 and validated historical data will be used to complete screening assessment.

End of Phase 2

- Based on the Phase 1 data, prepare RAGS Part D standard tables 1 and 6 and the Pathway Analysis Report.
- The data collected during Phase 1 and 2 and validated historical data will be used to prepare Tables 1-6.
- After EPA's review and comment, prepare complete human health risk assessment.